REMARKS

Claim objection

Claim 2 has been amended to correct the informality identified by the Examiner.

Claim Rejection – 35 USC § 112

Claims 1-7 stand rejected under 35 USC § 112 for being indefinite. The expression "FMI set-up" has been amended in claims 1 and 7, and now reads as "Fast Moiré Interferometry set-up". This amendment renders claims 1 and 7 clearer.

Claim Rejection – 35 USC § 103

Claims 1-8 stand rejected under 35 USC § 103, as being unpatentable over applicant's admitted prior art Figure 1 in view of U.S. Patent No. 6,552,783 (hereinafter referred as Schmidt).

The presently claimed invention relates to a system and method for shadow-free 3D and 2D measurements of an object. The system and method combine a Fast Moiré Interferometry set-up having a first lighting, with at least one constant second lighting.

Figure 1 of the admitted prior art depicts a typical Fast Moiré Interferometry set-up, which uses structured light projection and phase-shift method for 3D information extraction. The 3D analysis is based on the variation of a grid projected on the inspected object. As the grid is projected through the first light, at an angle with respect to the inspected object, a relief of the inspected object creates shadows on the inspected object. These shadows cause greater inspection time.

Schmidt describes an optical system for inspecting objects such as PCB boards. For doing so, Schmidt uses a color imaging system and a lighting system. The lighting system includes a first diffuse lighting source and a reflector/transmitter disposed along an optical axis of the color imaging system.

However, as indicated in column 6, lines 4-27, such lighting provides little discrimination between components and a surface of the PCB board, because of optical reflections. To reduce the effects of optical reflections, Schmidt proposes to use a plurality of diffuse lighting sources disposed alongside of an optical axis of the color imaging system. This plurality of diffuse lighting sources illuminates uniformly the PCB board and components thereon, and reduces optical reflections.

However, Schmidt does not disclose or describe a Fast Moiré Interferometry set-up, but rather a color imaging system. As known to those skilled in the art, the Fast Moiré Interferometry set-up utilizes projection of a grid on the inspected object, which is not the case of the color imaging system of Schmidt. Furthermore, the Fast Moiré Interferometry set-up uses structured light, i.e. a first lighting in combination with a grid in an axis of projection of the first light, while Schmidt uses a diffuse light. Because of that particularity, Applicant submits that using a second lighting, in addition to the structured lighting is not obvious in view of Schmidt, which uses only multiple diffuse lighting sources. Additionally, the issue at stake in the present invention is not optical reflections, but rather shadows. Although Schmidt discloses using a second lighting, such second lighting is not intended to alleviate effects of shadows, but rather optical reflections. Shadows and optical reflections are two distinct physical phenomena, requiring different solutions. For all these reasons, Applicant submits that claims 1-8 are not obvious and patentable in view of the admitted prior art of Figure 1 and Schmidt.

CONCLUSION

In view of the foregoing, Applicant submits that the present application is in good standing and patentable. Should the Examiner wishes to further discuss

the present application or the present response, the undersigned will be pleased to pursue such discussion and can be reached at (514) 871-2927.

Respectfully submitted,

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